Model 8200

DC Voltage/Current Calibration Standard

The Model 8200 is an extremely accurate microprocessor-based, remotely programmable, line-powered portable DC voltage/current standard. Transferring NIST reference values to instrumentation and equipment in the laboratory, the QA/QC department and on the production floor is convenient, fast and accurate.

Six decade controls allow adjustment of accurate, ultra-stable DC voltage ranges of ±100 mV, ±10V, and ±100V, in steps of 0.1 µV, 10 µV, and 100 µV respectively, with 10 ppm basic accuracy. If an even wider range is called for, a 1 kV option is available. The Model 8200 also provides outputs from ±1 µA to ±100 mA as a DC current source, with 100 ppm basic accuracy.

The 8200 offers microprocessor-assisted Incrematic™ control, allowing unlimited use of any one decade with full borrow/carry to and from all more significant decades for easier, faster, and more convenient manual operation. Measurements such as A/D linearity and monotonicity can be made at any chosen resolution, using only one knob. For additional convenience, the calibrator output automatically returns to zero whenever a new range or polarity is selected.

Well suited for automated test and calibration systems, the Model 8200 offers an optional rack mount kit, a rear terminal output, and IEEE-488 interface. Full automation is achieved by transmitting a simple character string for each new output setting, — an easier way to produce a long series of incremental changes in voltage or current. A fast 1 ms settling time, without troublesome overshoot, increases ATE throughput over other calibrators. The 8200 provides exceptional accuracy without special demands for recalibration or environmental control. It is stable to better than 20 ppm/6 months and 1 ppm/°C over a 0°C– 40°C range.

FEATURES

- ❑ True Secondary-Transfer-Standard Performance
- ❑ 10 ppm rdg. + 1 ppm rng. Basic Accuracy
- ❑ 10 ppm Stability for 60 Days, 20 ppm for 6 Months
- ❑ “Incrematic™” Dial Control
- ❑ Over 2-Million Value EMF Reference Source
- ❑ 5-Decade Current Source
- ❑ NIST-Traceable on All Ranges
- ❑ µP-Based Design with Optional IEEE-488 Interface
- ❑ 1 ms Settling Time
- ❑ Full-Floating Output

APPLICATIONS

- ❑ Instrument and Component Testing
- ❑ A/D and D/A Converters
- ❑ Operational Amplifiers
- ❑ Voltage to Frequency Converters, VCOs
- ❑ Sensor Based Instrumentation
- ❑ Analog Function Modules
- ❑ Calibration of Precision Equipment
- ❑ ATE

ANALOGIC®
The World Resource for Precision Signal Technology

SPECIFICATIONS

VOLTAGE MODE

Range	Full Scale	Resolution	Max. Load
100 mV*	±104.8575 mV	0.1 µV	(EMF source)
10V	±10.48575V	10 µV	100 mA
100V	±104.8575V	100 µV	10 mA

* Rear panel connector only

Accuracy (at 23°C)
±(60 ppm reading + 1 µV) on 100 mV range
±(10 ppm reading + 10 µV) on 10V range
±(10 ppm reading + 100 µV) on 100V range

Output Impedance
100Ω on 100 mV range
10 mΩ on 10V range
20 mΩ on 100V range

Long Term Stability
10 ppm for 60 days, 20 ppm for 6 months

Temperature Coefficient (0°C to 40°C)
±(1 ppm/°C reading + 0.2 ppm/°C range) on 10V range
±(2 ppm/°C reading + 0.2 ppm/°C range) on 100V and 100 mV ranges

Settling Time
1 ms to rated accuracy, without range change
15 ms to rated accuracy, with range change

Noise (DC–10 kHz)
10 µV RMS on 10V range
100 µV RMS on 100V range

Output Configuration
Opto-isolated, floating, guarded 4-terminal with remote sensing, on 10V and 100V ranges; Rear panel shielded connector, 2 te r-minals plus guard, on 100 mV range

CURRENT MODE

Range	Full Scale	Resolution	Voltage Compliance
±100 mA	±100.000 mA	1 µA	10V

Accuracy
±(0.01% reading +1 µA)

Temperature Coefficient
±(10 ppm/°C reading + 2 ppm/°C range)

Output Configuration
Opto-isolated, floating, 2-terminals plus guard

OPTION 1 KV: 1 KV OUTPUT AMPLIFIER

Full Scale Range
±1048.575V

Resolution
1 mV

Maximum Load
1 mA

Output Impedance
0.5Ω

Basic Accuracy
±(10 ppm reading + 1 mV)

Noise
2 mV RMS, DC–100 kHz, including 0.5 mV switching spikes at approximately 50 kHz

Settling Time
1.0 second

GENERAL

Maximum Common Mode Voltage
500V guard to case

Calibration Interval
60 days for 10 ppm stability
6 months for 20 ppm stability

Warm-Up Time
1 hour to rated accuracy

Power Requirements
115/230V, 50/60 Hz, 25W

Controls and Indicators
Six rotary decade selector switches with carry and borrow
Rotary range and mode selector switch
Rotary polarity selector switch
Seven 0.8” LED indicators (+/–/overflow and six decades)
Five annunciators (mV, mA, REM, UL “da n-gerous voltage” symbol, and “Error” display)
Push-button power switch

Dimensions
17” (432 mm) W x 3.5” (89 mm) H x 13” (330 mm) D
all metal shielded case;
19” rack mountable

Weight
16.5 lb (7.5 kg)